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ABSTRACT

This guide aims to support state boards of education in influencing the creation of policies that encourage local school districts to use technology effectively as a tool for improving the learning of children with disabilities. It is based on the latest findings from research by the Office of Special Education Programs and the understanding of policy of the National Association of State Boards of Education (NASBE). The guide contains research-based information on types of technology, ways technology can be used to enhance children's learning, funding policies, guidelines for assessing existing technology plans, and resources for more information. An introductory section focuses on technology and the 1997 amendments to the Individuals with Disabilities Education Act (IDEA). The guide is divided into three main sections. Part 1 provides background information on the types of technology available for children with disabilities. Part 2 describes how state policymakers can effectively incorporate technology for children with disabilities in statewide and local planning efforts. Part 3 identifies funding sources for technology and suggests how to use them effectively. Appended are NASBE's Resolution on Technology and a list of major sources of federal support for accessing technology. An annotated list of Internet resources is attached. (DB)

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Reaching for the Sky

POLICY TO SUPPORT THE ACHIEVEMENT OF STUDENTS WITH DISABILITIES

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REACHING FOR THE SKY:

POLICY TO SUPPORT THE ACHIEVEMENT OF STUDENTS WITH DISABILITIES

A collaborative production of
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U.S. Department of Education

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Office of Special Education and Rehabilitative Services

NASBE
NATIONAL ASSOCIATION OF STATE BOARDS OF EDUCATION

Dear State Board of Education Member,

The National Association of State Boards of Education (NASBE) partnered with the Office of Special Education Programs (OSEP) of the Office of Special Education and Rehabilitative Services at the U.S. Department of Education to produce this guide *Reaching for the Sky: Policy to Support the Achievement of Students with Disabilities*. It combines the latest findings from OSEP s research and NASBE s understanding of policy to help you as a state education leader ensure that technology is available and accessible to all students. Technology can provide a helping hand to teachers, parents, and administrators working to meet the educational needs of an increasingly diverse student population.

This guide aims to support state boards of education in influencing the creation of policies that encourage local districts to use technology effectively as a tool for improving children s learning, especially that of children with disabilities. It contains research-based information on types of technology, ways technology can be used to enhance children s learning, funding policies, guidelines for assessing existing technology plans, and resources for more information.

Both NASBE and OSEP believe that the best way to harness technology to help children with disabilities is to address the unique needs of these students as part of an overall technology plan. That is why people at the state level need to become involved to prevent piecemeal planning and to ensure that district and school personnel have the information they need to incorporate technology for children with disabilities into a comprehensive technology plan.

We hope that the information in this guide will help you support schools as they strive to use the power of technology to meet the various learning needs of all students.

Sincerely,

Judith E. Heumann
Assistant Secretary
Office of Special Education
and Rehabilitative Services
U.S. Department of Education

Brenda Welburn
Executive Director
National Association of State Boards of Education

REACHING FOR THE SKY:

POLICY TO SUPPORT THE ACHIEVEMENT OF STUDENTS WITH DISABILITIES

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FOREWORD

Why is Technology Imporant?

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Why is Technology Important?

With the help of technology, all children — with or without disabilities — can more easily acquire knowledge and skills and become better prepared for the future. For instance, technology helps students:

- ***Practice classroom skills*** — Computer programs can analyze students' progress based on their correct and incorrect responses, and then use this information to assist teachers and to construct new problems customized to each student's level. Flash cards can be used to give students an opportunity to practice on their own or with others.

- ***Gain access to classroom activities*** — Speech synthesizers and hearing aids enable children with physical and sensory disabilities to participate in classroom activities.

- ***Stay motivated*** — Because many students have a strong interest in technology, they frequently pay more attention to material taught through technology such as instructional videotapes than through traditional teaching.

- ***Learn from remote locations*** — A number of schools have expanded their course offerings by using two-way television to enable off-site teachers to instruct their students or by allowing students to participate in classes at another school. Students can use the Internet to access data bases and share information through electronic chat rooms, electronic mail (e-mail) and computer conferencing.

- ***Conduct research*** — Access to the Internet opens up a world of information, providing students and teachers at even the smallest schools with access to libraries, museums, organizations, magazines, newspapers and businesses all over the world.

- ***Create concrete visual images*** — Computers can create virtual worlds for students. They can show students what it was like to travel down the Mississippi River or allow them to try their hand at managing a city. These experiences enable students to learn by doing, which helps them build greater understanding.

- ***Organize thoughts*** — The interactivity of the computer allows children to compose and recompose to improve their organization and writing.

- ***Construct projects*** — Computers can help teachers guide students through the first stages of a project, then require them to learn on their own to complete the project. For example, instead of having students read about zebras in their textbook, the teacher can assist the class in constructing a World Wide Web page about zebras and have students research the subject on-line.

- ***Acquire job-related skills*** — Most jobs require an understanding of how to use a calculator and/or computer for word-processing, data collection and data analysis. In addition, technology helps build critical job related skills such as cooperation and organization.

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INTRODUCTION

Individuals with Disabilities Education Act (IDEA)

Introduction

Individuals with Disabilities Education Act (IDEA)

In June 1997, President Clinton signed amendments to the federal special education law that require schools everywhere to set standards for children with disabilities that equal those set for all students. And for the first time, federal law requires that teams responsible for developing students' Individualized Education Programs (IEPs), Individual Family Support Plans (IFSP) and Individual Transition Plans (ITP) consider whether children with disabilities require assistive technology devices and services.

Further, the new law maintains the requirement that schools provide technology or services *at no cost* to students or parents when assistive technology is incorporated into the student's IEP. Students and parents are empowered to advise the IEP teams that certain assistive technology should or should not be considered in developing their plan.

IDEA '97 presents unparalleled opportunities to demonstrate that children with disabilities *can* achieve when instruction is appropriate, explicit and systemic. Even more important, state policy makers now have the opportunity and institutional support to significantly improve the lives of children with disabilities and all who touch them.

The Law: Challenges and Opportunities

The impact of the landmark measure is far-reaching. It means that children with disabilities are not only enabled to make decisions about their own education — and what they need to help them achieve — but that schools must hold these students to the same high standards as other students and, at the same time, provide supports to help them achieve.

For state policy makers, including state boards of education and state-level administrators, the law presents challenges as well as opportunities. "All students can learn" has become almost a mantra of educators over the last decade. Sadly, many do not truly believe all students are armed with the intellectual skills to achieve at acceptable levels.

This guide is intended to offer ways that people who make and implement state policy can address the challenges and take advantage of the opportunities that the passage of the IDEA '97 provides. The real challenges

The 1997 Amendments to the IDEA

- Require states to include children with disabilities in their overall student assessment program, and report on the performance of students with disabilities to the public.
- Emphasize access to the general education curriculum for children with disabilities.
- Specify the critical role of parents and family members, including specifically their involvement in determining the appropriate early intervention, special education, transitional and related services for their child.
- Provide increased support for professional development in order to prepare special education, regular education, and related services personnel to more effectively serve children with disabilities.

for state policy makers are to: (a) communicate to all educators that the expectations have been raised; and (b) clarify that nobody expects schools to do this on their own. Congress, the President and the American people now expect schools to make a good-faith effort to deliver on the promise of equity. The law has equipped state policy makers to help schools construct the support systems that will enable them to raise the achievement levels of all their students.

What Can Be Done

Implicit in the new law is the principle that assistive technology devices and services are critical to supporting teachers in their instruction of children with disabilities, and that professional development plays a critical role in enabling teachers to effectively use technology with their students.

When amending the law, Congress did not simply postulate that well-trained teachers armed with effective technology could improve the educational performance of children with special needs. They relied on research that shows these children indeed can be educated to higher standards in integrated classrooms where teachers use research-based practices that employ appropriate technology.

Such practices can also save money. More than one million children with serious disabilities, many of whom would have been placed in residential institutions 30 years ago (at an annual cost of nearly $30 billion), are now being educated in local schools at average estimated savings of $10,000 per child. That amounts to $10 billion a year in savings.

State policy makers can play a powerful role in ensuring that technology is used effectively in their states to educate children with disabilities. As they oversee the implementation of comprehensive state and district technology plans as well as state special education plans, they can ensure that the needs of students with disabilities are specifically addressed, and that the plans spell out how technology can be used and financed to benefit these students. In addition, as they oversee development of local plans, state policy makers can ensure that the plans are aligned with state initiatives. Finally, they can ensure that plans make clear the links between technology, curriculum development, instructional strategies and professional development.

Many state policy makers already recognize a need for such guidance. In 1996, a national survey conducted by researchers at the University of Kentucky found that 86% of state directors of special education reported a moderate-to-great need for local education agencies to develop technology policies for students with disabilities.

Policy makers do not have to start from scratch in their thinking. States such as Michigan and Kentucky already have developed state technology plans that make students with disabilities a focus. This guide is intended to point you to innovative policies and practices that can help your state develop a comprehensive technology plan that includes students with disabilities as well as complies with the IDEA's important new requirements.

Overview of This Guide

The guide is divided into three main sections:

- ***Technology for Children with Disabilities*** provides background information on the types of technology available for children with disabilities and how technology can help them learn, contribute and participate in the classroom.

- ***Policy Levers for the Effective Use of Technology*** describes how state policy makers can effectively incorporate technology for children with disabilities in statewide and local planning efforts.

- ***Investing in the Future*** identifies funding sources for technology and suggests how to use them effectively.

This guide is designed to be helpful to state policy makers in shaping policy and influencing achievement of students with disabilities — it shows how to educate students with disabilities at higher levels, in classrooms alongside their non-disabled peers. Solutions are not only possible; they have been tested in some states and are starting to produce promising results.

PART I

Technology for Children with Disabilities

THIS CHAPTER ADDRESSES THE FOLLOWING QUESTIONS:

- What is assistive technology?
- How do technological tools support student achievement?
- What types of technology help improve the learning of students with disabilities?
- How can technology support teachers' efforts to monitor and assess students?
- How can technology support the inclusion of students with disabilities in statewide assessments?

Teachers report that technological learning tools are a useful supplement to their teaching of students with disabilities. Well-designed technological tools used by trained teachers help students with disabilities to achieve at higher levels. Such tools allow teachers to move freely about the classroom, monitoring student progress and providing feedback so students can learn more effectively. While the benefits of technology accrue to all students and their teachers alike, the educational benefits are especially notable among students with disabilities, for whom technology expands opportunities for learning, independence, and increased self-confidence.

What is assistive technology?

The 1997 Amendments to the IDEA recognize this unique role of technology for students with disabilities by requiring, for the first time, that assistive technology devices and services be considered in the development of a child's Individualized Education Program (IEP). According to the IDEA,

- an ***assistive technology device*** refers to "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability," and

- an ***assistive technology service*** is "any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device."[1]

With the support of appropriately selected and used devices and services, students with disabilities can access the same educational opportunities and meet the same academic standards as their non-disabled peers and classmates.

It is important to note that the IDEA defines technology broadly, and does not limit the definition to expensive or sophisticated equipment. For example, assistive technology devices can range from basic adaptive aids, such as special pencils and Velcro

EXHIBIT 1-1

Continuum of Technology Solutions: Examples

	Technology to Increase Access	Technology as Instructional Tool
No-Tech	• Physical, speech or occupational therapy	• Systematic teaching procedures
Low-Tech	• Pencil with rubber grip • Velcro fastener • Raised desk to accommodate wheelchairs	• Flash cards • Overhead projector • Chalkboard
Medium-Tech	• Wheelchair • Hearing aid	• Calculators • Instructional video tape
High-Tech	• Adaptive keyboards • Speech synthesizer • Virtual reality devices	• Instructional computer software • Interactive multimedia systems • Computer text with hypermedia links

[Adapted from Blackhurst, E. (1997). "Perspectives on Technology in Special Education." *Teaching Exceptional Children*, May/June 1997, 41-48.]

[1] Training, maintenance, and staff support are examples of assistive technology services under IDEA.

fasteners, to sophisticated computers and interactive multimedia systems. These tools form a continuum of solutions — from "no-tech" solutions to "high-tech" solutions — that address the highly individualized needs of all students. As Exhibit 1-1 illustrates, this continuum of solutions applies both to tools used to increase student access to educational opportunities as well as to those designed to support the instruction of students.

How do technological tools support student achievement?

Since Congress first passed P.L. 94-142 (the predecessor to the IDEA) nearly thirty years ago, students with disabilities have been educated increasingly in classrooms alongside their nondisabled peers. If the educational goals of the IDEA are to be realized, teachers must be prepared to implement a variety of instructional strategies to meet the highly individualized needs of students. Technology can provide teachers with the critical support necessary to meet this challenge.

Consider the beneficial impact that technology can have on the lives of children with disabilities:

- Jose, a middle school student with a learning disability, improved his performance in basic mathematics by using a software program that tested his proficiency in skills and concepts ranging from basic to complex and provided individualized feedback and correction.
- Chris, a five-year-old boy with cerebral palsy, learned how to navigate his motorized wheelchair safely by manipulating simulated wheelchairs in increasingly difficult "virtual reality" environments.
- Barbara, an elementary school student with a learning disability, learned how to recognize words with the assistance of a computer program that showed her how to segment words by sound.

In each of these examples, the technology was used to deliver an effective instructional strategy for helping students learn. For instance, teachers often use anchored instruction techniques in which students learn abstract concepts by applying them to real-life settings and situations. Several technological tools can help teachers deliver this type of careful, individualized instructional support.

Exhibit 1-2 identifies various types of disabilities and technological tools that can be used to support instruction, and learning outcomes associated with their use.

What types of technology help improve the learning of students with disabilities?

A growing body of research shows that, with the right tools and with teachers trained to use them:

- Students with disabilities can become integral and vital participants in the classroom; and
- Students with disabilities can master basic skills and challenging curricula.

Enhancing Classroom Participation

Many students with physical and communication disabilities have been unable to participate in general education classrooms, even though they are capable of the same achievement levels as other students. Technology can help provide these students the support they need to actively engage in learning with their classmates. The following strategies have shown promising results:

- Students with significant communication difficulties have been aided by ***picture communication boards*** and other low-technology devices. Here's

Technology Solutions to Meet a Variety of Educational Needs

EXHIBIT 1-2

Disability	Technological Tool	Outcomes
Learning disability	***Multimedia computer environments*** combine features of text, video, graphics and sound to present stories and other written information.	Students can use multimedia-based computer programs to ***read at their own pace***, with individualized feedback on the pronunciation of difficult words. In addition, by introducing text with video, students can make direct connections between words on the screen and information they learn elsewhere, making it easier for them to ***comprehend the meaning of phrases, sentences and passages***.
Behavioral disability	***Spreadsheet programs*** perform simple and complex mathematical calculations on inputted data.	By solving real-world, familiar problems such as how much to charge for a spring dance, students are able to ***analyze and manipulate abstract concepts*** in a way that is both understandable and interesting. These tools are grounded in real world problems and motivate students who would otherwise stray off task.
Severe communication disability	***Voice recognition technology*** permits a computer to accept voice input as if it were coming from a keyboard, translating unintelligible sounds into comprehensible speech.	Students can ***interact and participate*** more readily within the classroom.
Visual disability	***Speech synthesizers*** translate printed text into recorded sound.	Students can learn from printed information through books, magazines and on text as well as ***Internet pages***.
Physical disability	***Electronic wheelchairs*** are equipped with customized seating systems, electronic, programmable controls and joy sticks that swing out of the way to allow users to pull close to tables and desks of standard height.	Students have more opportunities to ***move independently, explore and interact*** with others in the classroom.

how the device works: students communicate by pointing to pictures created on the board by a teacher or parent. The teacher or parent can create different overlays with different pictures depending on the topics. A more advanced variant of this tool allows the parent or teacher to record words and phrases that the child selects for the communication board to play back during the day. For example, the child s teacher or parent can pre-record a song or phrase, such as The Pledge of Allegiance so the child can participate.

Children with severe physical disabilities can communicate or accomplish particular motor tasks with ***voice recognition systems***, a technology that recognizes and obeys spoken commands. With the right equipment, students can turn lights on and off or select a correct answer without having to move their hands. Advanced forms of speech recognition can turn words spoken by a child into text. This enables children to participate more actively in class without depending on others to do things for them.

A few educational technology researchers on the cutting edge of technology have pioneered the use of ***computer simulations*** and ***virtual reality*** for students with orthopedic impairments. The sophisticated equipment can develop simulated software environments that mimic the same environments the students encounter in their everyday lives. Working within the simulated environments gives children with disabilities the increased confidence and heightened skills they need to be active participants in their classrooms.

Mastering Basic Skills

Students with disabilities often have difficulty developing the basic skills that form the foundation for reading, writing and arithmetic. These skills include sounding out and recognizing words, spelling, organizing thoughts, mastering basic mathematical facts and learning new words. Computers and software have been used to help students master such skills and facts, providing them with a foundation for further learning. Following are examples of such technology:

Commercially-available ***speech synthesis programs*** can help teach students how to segment words phonetically, skills crucial to reading and understanding words. With sophisticated speech synthesis technology, the computer records the accuracy and speed with which the learner reads the words displayed on the screen into a microphone. The computer program provides feedback before introducing new words.

Commercially-available ***word prediction software programs*** p rograms that provide possible word choices based on input of incorrectly spelled words a l l ow students whose disabilities prevent them from benefiting from conventional spell-checkers to complete written assignments on time, improve their written fluency and spelling accuracy, and concentrate more fully on the topic at hand.

Think-aloud sheets can help students who are unable to write coherently to organize their ideas as they write. As a low-technology solution, printed think-aloud sheets have been used to successfully teach students different strategies for sequencing information about a topic and comparing different points of view by presenting written prompts. New

Sara s Computerized Wheelchair

Sara, an active and charming fifth-grader with an engaging smile, has orthopedic impairments resulting from her cerebral palsy.

To enable her to more actively engage in classroom learning, Sara s wheelchair was customized with a special seating system that includes electronically-programmable controls. A joystick allows her to maneuver closer to tables and desks, permitting her to participate in activities with classmates.

Because of her disability, it is difficult for her to physically complete writing assignments. A lightweight, portable computer, attached to her wheelchair, includes word prediction software that helps her finish the assignments with less effort. Typing with one finger, she types the first letters of a word and the software generates a list of possible words. Sara loves the technology. In her words, It lets me complete my work on time, without getting tired!

high-tech software, available for purchase, can make the job even easier.

Computer assisted instruction (CAI) programs help students learn vocabulary and mathematical operations through repetitive exercises that introduce more difficult facts as the students increase their skills. Throughout the exercises, the programs provide consistent feedback on user performance.

Improving Writing

Thomas, a third-grader with a learning disability, read at a first-grade level, and his spelling was so poor that his writing was almost always unreadable, even to him. On the recommendation of researcher Charles MacArthur of University of Delaware, Thomas began using My Word s , a word processor with speech synthesis and word prediction capabilities.

Using the program, Thomas typed the first letters of a word and the computer automatically scrolled to a list of words beginning with those letters. He then clicked on the correct word. If uncertain, he could hear the word pronounced by a speech synthesizer before selecting it. Another feature, one of Thomas favorites, read aloud what he had written.

Thomas teacher was doubly impressed with the software because it not only freed Thomas to write, but it also allowed her to spend less time taking dictation from him, leaving her more time to help the entire class.

Mastering the Curriculum

Today s technology allows students with disabilities to learn the knowledge and skills that all children need when they enter the work force or post-secondary schools. Teachers can use certain tools to support instruction and personalize it for students with specific problem areas. Consider the following:

Reading: As much as 70% of students time in school is spent on reading-related assignments. This presents significant challenges to students with reading difficulties. Software programs (such as Wiggleworks) that include hypertext (a series of electronic links between different pages on the screen) enable these students to seek additional information on words they do not know. By clicking on a word, the student can check the highlighted word s meaning in a dictionary, see a picture, probe its history in an encyclopedia, or hear it pronounced.

Mathematics: Commonly available tools such as fraction calculators and simple computer spreadsheets have proven to be useful aids in helping students with learning disabilities learn how to manipulate fractions, simplify an answer and convert it to a decimal. Moreover, this software creates concrete representations of abstract mathematical concepts.

Social Studies: Research has shown that many students with disabilities have difficulty following the text and organization of traditional textbooks. Using computers and scanners that enter print material into the computer s memory, teachers can replace text with more interesting and easier-to-read sources. This enables the child to learn from multiple sources, explore content in-depth and conduct independent research projects.

How can technology support teachers' efforts to monitor and assess students?

Monitoring and assessment are particularly important for students with disabilities. Unfortunately, assessing student performance frequently consumes valuable teacher time — time that could instead be used working with students. Technology-enhanced student performance assessments provide teachers with valid and reliable information for tailoring instructional programs to fit student needs. These also allow teachers to judge the effectiveness of their instructional programs.

Although technology cannot replace the teacher, it can help the teacher do more, faster. More importantly, technology can monitor individualized student programs more efficiently, thereby freeing up more teacher time for instruction and other tasks. Following are some examples of the promise of technology-based assessment instruments:

- ***Curriculum-Based Measurement (CBM)***, which allows teachers to continuously assess student performance on particular skills, is time-consuming. Technology has made this process less time-consuming for teachers. Students take tests at computers, which are programmed to score and analyze responses. Competencies in all measured skills are profiled and charted, and specific instructional recommendations are offered.

- ***Expert systems*** are interactive databases that house the information and "expertise" needed to make appropriate assessment decisions about educating children with disabilities. Using expert systems, members of a multi-disciplinary or child-study team can make rigorous and reliable choices about eligibility and placement in special education. These systems also can help educators and families make decisions about a student's learning needs.

How can technology support the inclusion of students with disabilities in statewide assessments?

Traditional testing settings and circumstances may prevent students with disabilities from demonstrating what they know (and don't know). However, the new IDEA requires that students with disabilities be included in statewide assessments. Technology can help ensure that the assessments are accessible, and fair, as well as

Evaluating a Student With Technology

Marcus is a fifth-grade student with a learning disability that affects how he learns math facts. At the beginning of the year, he took a computerized test that covered items from his math curriculum. The computer software analyzed the results and determined that he had mastered addition but not subtraction. It also showed that he needed work on skills such as regrouping, multiplication and division.

After indexing his overall math knowledge, the software generated a series of specific instructional recommendations. His teacher reviewed the recommendations and then tailored her instruction to meet his needs.

Marcus continued to complete weekly assessments on the computer. The assessments detected that Marcus still had difficulty with regrouping. So the software offered new instructional suggestions based on the ways Marcus had learned in the past.

challenging. Following are two possibilities for ensuring higher inclusion rates in assessments:

- ***Alternative accommodations*** for students with disabilities include a number of no-tech or low-tech options that are simple to implement. For instance, students who have reading difficulties can be given more time to take a test; those with visual impairments can be provided with a larger print-version of the test; and students with behavioral disabilities can be allowed to take the test in an isolated environment that minimizes distraction.

- ***Computerized testing environments*** can also be used to assess the performance of students with disabilities. Computerized environments can facilitate a variety of specific test modifications to accommodate the specialized needs of the test-takers, and can lead to increased inclusion of students in state and district assessments.

Many currently available technologies — and new products constantly under development — have demonstrated their effectiveness for educating children with disabilities. They have the power of supporting students and their teachers in ways that were not thought possible just a decade ago. The challenge for state boards of education is to foster the development of policies and practices that ensure the best uses for technology at the district and school levels.

PART II

Policy Levers for Effective Use of Technology

THIS CHAPTER ADDRESSES THE FOLLOWING QUESTIONS:

- How important is coordination and collaboration in technology planning?
- How can professional development efforts be supported to enhance the use of technology?
- What state policies can encourage the infusion of a full range of technology solutions in schools?

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As with any tool, the effectiveness of technology depends on how carefully it is selected and used. A school or school district that picks a computer at random, or solely because of cost considerations, will not garner the same advantages as one that determines its needs, crafts an education plan and then chooses the best technology to implement the plan. A wise investment in technology, solidly backed by teacher professional development and technical support, will pay off in improved achievement for all students.

State boards of education and administrators play an important role as states, districts and schools face the dual challenges of meeting the technology needs of individual students and implementing their system-wide technology plans. State boards can and should take an active role in assisting with the coordination of these efforts and ensuring their success. The Checklist for Technology Planning at the end of this chapter provides a list of elements that every plan should include.

The National Association of State Boards of Education (NASBE) recognizes the importance of such a role. Its membership-approved resolution on technology calls on state boards to "ensure that all students have access to the tools they need to achieve high standards, and that educators master proven instructional tools and strategies" (See Appendix A). It states that these precepts apply to all children, including those with disabilities. NASBE's resolution includes recommendations that state boards of education set policies to ensure that teachers and administrators receive training in technology, establish statewide infrastructures and develop state technology centers.

This chapter identifies ways in which state boards and other officials can ensure that technology is used effectively in schools across the state to benefit all students.

How important is coordination and collaboration in technology planning?

Elements of technology plans vary from state to state, but the more successful plans have something in common — they all approach planning from a multi-agency perspective. Supporting the achievement of all students, and using technology to do so, requires collaboration and a coordination of resources across multiple state sources. Following are examples of states that have used such a strategy:

- Missouri's Department of Elementary and Secondary Education works closely with the Missouri Assistive Technology Project and the Center for Innovations in Special Education. The collaboration is designed to alert schools about the importance of acquiring technology that is accessible to the greatest number of students. Also, as a result of their efforts, the state's special educators have received valuable information, training and technical assistance on how to effectively integrate computer technology into their curriculum.

- In Utah, four state agencies — the Division of Services for Persons with Disabilities, the Health Department, the Utah State Office of Education and the Division of Vocational Rehabilitation — jointly provide information and referrals on technology and other services for students with disabilities. They also collaborate to coordinate policy on funding and service delivery, and to address the technology needs of state residents of all ages. Such comprehensive interagency collaboration provides valuable special education services to schools and school districts.

Collaboration has been an important aspect of The Technology Literacy Challenge Fund (TLCF), a federal program that provides financial support to states for implementing their statewide technology plans. TLCF encourages states to consider those populations within their state that demonstrate the *greatest need* for technology, and some states have implemented collaborative strategies in order to target the needs of students with disabilities. For example:

- Kentucky's state plan includes a commitment to ensuring that all schools are fully aware of their responsibility to provide equal educational opportunity to all students, including those with disabilities, as they purchase and apply technology. The Kentucky Department of Education, in collaboration with the Kentucky Assistive Technology System and the Governor's Advisory Council on Assistive Technology, maintains and routinely updates a matrix of proven assistive/adaptive technologies that schools may procure with state funds. Therefore, Kentucky not only provides schools with the funds necessary to purchase such tools, but also with research-based guidance on which tools are most effective.

- The Michigan State Board of Education has set policies to ensure that appropriate technologies are made available for students with disabilities. Michigan's technology plan includes a recommendation to continue the efforts of several statewide initiatives that help schools and districts provide inclusive education through the use of technology. As a result, schools in Michigan have been able to draw upon a wide network of informational and technical assistance resources on the effective use of technology in special education.

In addition to the need for multi-agency collaboration at the state level, there also is a strong need for coordination between the state and local school districts over the development of assistive technology policies. Even though schools and school districts conduct their own technology planning efforts, state education agencies need to ensure that local plans are aligned with state initiatives and that there is sufficient collaboration among states and districts.

A national survey of State Directors of Special Education (see sidebar: *Need for Policies*) found that survey respondents stated that they felt local planning efforts to incorporate assistive technology in the schools were insufficiently designed and implemented. One barrier to effective planning has been a lack of communication and collaboration between personnel from state education agencies and local education agencies who are involved in the development of such policies. Strong coordination between state agencies and localities can ensure that local technology plans contain the right information and incentives.

How can professional development efforts be supported to enhance the use of technology?

Staff development is a vital part of any technology plan (see sidebar: *A Scarcity of Professional Development*). Because teachers play a critical role in ensuring the effectiveness of technology, they must be trained in its use and understand how they can adapt their lessons to take advantage of the technology. Once this happens, they will likely become more comfortable with the technology and discover additional ways to enhance its use. The following provide examples of what state boards can do to improve the capacity of teachers to use technology effectively.

Need for Policies

In 1996, more than four out of five state directors of special education (86%) reported a moderate-to-great need for local education agencies to develop technology policies for students with disabilities.

Source: *National Survey of State Department of Education Assistive Technology Policies*. Jennifer K. Bell and A. Edward Blackhurst, 1997.

- ***Teacher Licensure and Certification***
  Many teachers were trained long before innovative new technology existed and do not know how to incorporate it into their classrooms; other teachers may need to refresh or update their knowledge about the technology available at their school and how to use it. States can encourage better use of educational technology by requiring teachers to meet technology standards as part of their recertification and by funding regional training centers to introduce teachers to new technology. Schools should consider initial training and subsequent support, possibly in the form of on-site technical assistance, whenever new technology is introduced.

A Scarcity of Professional Development

Studies show that most teachers have not had the education or training to use technology effectively in their teaching. Only 15% of U.S. teachers reported having at least nine hours of training in educational technology in 1994.

Source: *Computers in Classrooms: The Status of Technology in U.S. Schools*, Educational Testing Service, 1997.

- ***Teacher Education Programs***
  State boards can use their authority over accreditation of education programs, entrance criteria for teaching programs, and teacher certification requirements to raise the level of understanding about effective applications of technology. For example, states can require that technology courses include information on the use of technology for students with disabilities, or that special education courses include information on the effective use of technology. In addition, states can require prospective teachers to demonstrate technological ability in order to obtain certification.

- ***State Program Improvement Grants for Children with Disabilities***
  Under the newly reauthorized IDEA, states may apply for improvement grants, which are designed to help states reform special education services, with a particular emphasis on professional development. In fact, 75% of funds awarded under these grants are to be directed toward ensuring the sufficient provision and preparation of personnel. State boards of education can take advantage of this money to provide additional technology training to regular education, special education and related-services personnel.

What state policies can encourage the infusion of a full range of technology solutions in schools?

While special technology plans and commissions are important, technology will not be fully integrated into schools until it becomes part of the normal routine. State boards can advance this process by revising and creating policies or promulgating regulations to ensure that technology is a part of regular and special education.

Criteria for Local Technology Plans

An analysis of local technology plans recently conducted by Debra Hart and Sue Cusack of the Institute for Community Inclusion at Children s Hospital in Boston, MA, suggests criteria that state officials can use to determine whether school technology plans accommodate the needs of children with disabilities (see sidebar: *Suggested Criteria for Local Technology Plans*). They recommend that state leaders ensure that plans enhance access to learning for all students, across all environments, using the full range of technology. Many states are using similar criteria to develop and evaluate local technology plans.

Curriculum Frameworks

When developing curriculum standards, curriculum modules and sample lessons, states should consider how technology can be used in the classroom. For example, instead of recommending that students write a paper on a given topic, the curriculum could encourage that they also have the opportunity to tape a video or construct a multi-media presentation. Similarly, modules could recommend the use of particular software programs, Internet sites or films. In the same way, these standards could include advice on how teachers should use assistive technology to help children who have physical and/or sensory disabilities. By providing guidance to teachers, states can encourage greater use of technology and help more students achieve a deeper understanding of the curriculum.

High School Graduation Requirements

As of 1995, all but seven states required or encouraged integrating technology into the high school curriculum. About 25% of the states mandated the integration of computer technology across the curriculum and nearly 40% had computer requirements for graduating seniors. For example, since 1984 Arkansas has required one unit of computer science for students to graduate. Including technology as a graduation requirement helps prepare all students for the transition to an increasingly technological workplace.

Suggested Criteria for Local Technology Plans

Plans should ensure links between policies and practices related to curriculum development, instructional strategies, professional development and the management of technology resources. This requires a comprehensive view of all school environments, such as the cafeteria, hallways, gym, science lab, auditorium, bathrooms, study halls, student center and playground, as well as areas associated with extra-curricular activities, home and the community. Plans should include tools that enhance instruction and make learning more accessible to all students, such as visual aids that enliven overhead projector demonstrations, tape measures with digital read-outs, talking scales, oversized calculators and electric pencil sharpeners.

- ***Instructional Materials***

  States that approve textbooks have begun reviewing technology tools as instructional materials. In Texas, for example, the state has approved a CD-ROM for use as a high school biology textbook. States could sponsor education technology fairs and inform department chairpersons and curriculum specialists about available technology. They also could design model lessons and activities that incorporate technology. Such technology-based instruction would help deliver lessons in ways that are more explicit and tailored to individual education needs, factors which are particularly beneficial for students with disabilities.

Many researchers and policy experts agree that sound technology policy is developed by integrating technology into professional development, state planning goals and local efforts. Through careful coordination among state, district and school planners, technology can become a valuable educational tool that benefits all students.

Checklist for Technology Planning

State board of education members (and administrators) can use the following checklist as a guide in planning for the effective use of technology in schools and school districts across the state. This list can also be used as a basis for dialogue about what types of policy support are needed at the state and district levels.

_____ The plan addresses the technology needs of students with disabilities.

_____ The plan emphasizes the importance of professional development.

_____ The plan aligns with other state education plans such as the state's plan for special education, and includes mechanisms for coordination and collaboration with other state agencies.

_____ The plan includes policies and strategies for dealing with the costs of technology, including maintenance and infrastructure.

_____ Full participation of all stakeholders has been encouraged in the planning process to ensure successful implementation.

_____ The plan recognizes the importance of validated research-based practices for educating students with disabilities.

_____ The plan includes methods for assessing and evaluating the use of a range of technology to address the diverse needs of children.

_____ The plan complies with all federal and state laws and regulations, including the IDEA.

_____ The plan includes a funding strategy to leverage funds for technology from all available resources.

_____ There are procedures for disseminating information to policy makers, practitioners and families about available services and policies.

Checklist is based on information from several sources, including the National Center for Technology Planning, and a national survey of state departments of education on assistive technology policies. The survey was conducted by A. Edward Blackhurst and Jennifer K. Bell of the University of Kentucky Assistive Technology (UKAT) Project.

PART III

Investing in the Future

THIS CHAPTER ADDRESSES THE FOLLOWING QUESTIONS:

- What can state policy makers do to ensure that available funds are used to support the effective use of technology for all students?
- Where can funds be found at the federal, state and local levels?
- How can funds be brought together for the purchase of technology and related services?

The first two chapters of this guide provide state policy makers with information on why technology is important to the education of children with disabilities and how it can be integrated into state technology planning. To ensure that districts and schools have the resources necessary to support the recommended policies, state policy makers need to examine the various sources of funding available and create funding packages that support the cost-effective use of technology. Meeting the challenge of making sound investments in technology and professional development requires a solid understanding of the sources of funding and how they can be combined to produce the best results.

Further, overcoming this challenge will also help states comply with the requirements of the IDEA. Under this legislation, school districts are required to pay for technology that meets the educational needs of students with disabilities and is included in their IEPs, as appropriate. In fact, districts cannot require the families of students with disabilities to buy or share the costs of such devices. Districts can use alternative funding sources, but only if they do not reduce medical or other financial assistance provided to the students or their families.

What can state policy makers do to ensure that available funds are used to support the effective use of technology for all students?

The effective implementation of state technology plans will depend significantly on the extent to which they reflect the funding realities of a particular state. For this reason, it is critical that state education agencies help local districts make cost-effective decisions related to buying and using technology. The following checklist (Exhibit III-1) will help state policy makers ensure that funding programs are integrated and coordinated so as to maximize the effective use of resources.

What States Can Do to Ensure that Funding Reaches Schools and Children

EXHIBIT III-1

States can use the following steps to develop integrated funding programs for the purchase of effective technology.

_____ Identify state and federal sources of funding for districts and schools.

_____ Conduct joint planning with other state agencies that might provide funding for technology such as the state "Tech Act" projects. (See Appendix B)

_____ Publicize funding options to families, schools and districts.

_____ Identify ways for districts to access private and public funding sources, including partnerships with business and industry.

_____ Require districts to assess and report on potential local funding sources.

_____ Require districts to conduct an inventory of technology in schools (and staff ability to use the technology) to determine the technology needs of the district.

_____ Appoint a commission to monitor the effectiveness of integrated funding programs to ensure that needs are being met.

_____ Require community, district and state-level feedback on the process for future planning.

In addition to developing integrated funding plans, state education agencies can provide training and technical assistance to districts as they implement their technology plans. Training and technical assistance can be offered through technology demonstration centers and model programs. States can also encourage the creation of technology "lending centers" that will enable districts to share technologies, thereby lowering costs. States can remind schools and districts that their technology budgets need to factor in associated costs such as professional development, planning time, maintenance contracts and the assignment of appropriate staff to oversee implementation. They can also insist that schools purchase hardware and software that is accessible to all students, including those with limited vision, hearing or mobility.

Where can funds be found at the federal, state and local levels?

A number of federal, state and local programs provide funding for technology purchases. Some, such as the federal Medicaid program, provide funds directly to eligible persons with disabilities. In other programs such as the IDEA, federal funds "flow through" states to local agencies.

In some situations, local school districts can use both federal and state education funds to pay for technology for children with disabilities. However, there is considerable variation in the regulations from state to state. State education departments can create regulations to help schools easily draw upon multiple funding sources.

EXHIBIT III-2

Federal Funds That Can Support Access to and Use of Technology

Source of Funding	Technology	Students with Disabilities	Professional Development	Economically Disadvantaged Students
Special Education	✔	✔	✔	
Title I	✔		✔	✔
Technology Literacy Challenge Fund	✔	✔	✔	✔
Goals 2000	✔		✔	
Tech Act	✔	✔		
Rehab Act	✔	✔		
Vocational Education	✔	✔		
E-Rate	✔	✔		✔
Eisenhower Professional Development Program			✔	
Head Start		✔		✔
Medicaid	✔	✔		✔
Children's Health Insurance Program	✔	✔		✔

Federal Funds

In recent years, Federal policy makers have placed increasing emphasis on education initiatives as a cornerstone of the national domestic policy agenda. The number of federal education programs has grown, and, consequently, the sources of funds flowing from the federal government to states and localities have grown as well. The availability of multiple programs and funding sources present a challenge to state and local policy makers, who must decide how much of which funds to spend in what ways.

At the same time, this myriad of federal funding sources presents state policy makers with an opportunity to maximize the educational benefits of programs in their state. While many federal programs target specific educational needs, all address a common goal — to achieve educational excellence by supporting *all* students in reaching high academic standards.

Exhibit III-2 identifies several federal funding programs designed to meet a variety of educational needs, including those related to technology, students with disabilities, professional development, and economically disadvantaged students. (For a more detailed description of the programs listed in this exhibit, see Appendix B.) State education agencies can combine funds from these sources to support the effective use of technology for educating students with disabilities. Successful strategies for ensuring that adequate funds are used to support technology for students with disabilities will likely draw from several streams of money.

The four elements included in Exhibit III-2 (technology; students with disabilities; professional development; economically disadvantaged students) are essential components for supporting the high achievement of *all* students. While no one program specifically targets all four elements, the potential collective impact of all these programs is tremendous. Policy makers can take advantage of multiple funding sources, drawing upon different sources to fill in the gaps that other funding sources may not fill as effectively.

State Funds

Federal funds can be used to supplement allocated state funding. Because every state has different funding sources, it would be useful for state education agencies to chart their state funding programs in a similar way. This would help districts and schools as they create their funding plans. Funds that have been allocated for technology, students with disabilities, professional development, and/or economically disadvantaged students could be drawn upon to support the district technology plans.

Examples of state support for the acquisition of technology include:

- funds appropriated to augment or match federal or local funds, such as Medicaid matching funds;
- funds allocated to communities, schools and organizations through grants and loans;
- state programs for individuals with particular needs, such as individuals who are visually impaired;
- deployment of state personnel with particular expertise in the area of technology; and
- state infrastructure of technical assistance, information services, and training, to help schools access and use technology to educate children with disabilities.

Other Funds

Other funds may be available to supplement state or federal money. Disability-related organizations —

such as local chapters of the National Federation of the Blind— and service organizations — such as Lions or Rotary clubs — often provide money and equipment to individuals. Local businesses, churches and foundations can provide money, donate equipment or support loan programs. In addition to these sources, families may also access necessary funds through private health insurance plans; however, this method is often at a cost to the families themselves.

How can funds be brought together for the purchase of technology and related services?

Funds available at the federal, state and local level are most effective when local school districts are able to combine them to meet the individual needs of students in their district. In fact, if not blocked by statute or administrative regulation, sources of funding are best viewed in the aggregate. State policy makers can play a vital role in building their state's capacity to create, expand, coordinate, and combine these sources where possible.

Generating resources for technology requires knowledge of funding sources, as well as creativity and perseverance. Too often, schools and districts do not know what funds are available or how to qualify for additional money. For example, educators and policy makers can and should look beyond the IDEA for financial support. The most successful districts develop strategies for combining both private and public funding sources. State policy makers can support districts in these efforts by:

- establishing state-level liaisons among those officials responsible for administering different funds,
- providing technical assistance and information to districts about the availability of funds, and
- working with the Tech Act Project (TAP) in their state to make funds accessible to individual families and schools.

Funds to Support Edward

Blind since birth, Edward receives support from his family as well as a number of public and private sources. These sources have given Edward access to the assistive technology and training he needs to use the tools independently.

Edward and his family participated in the Columbia Lighthouse for the Blind's children's program. The program provided a home visitor during Edward's preschool years, and reading services and summer camp during elementary and secondary school. Using funds from a number of sources, including the IDEA, Edward's public school district provided technology, such as an Apple II-E computer and Braille'n Speak device. The school also provided Edward with training programs, including a typing course and orientation and mobility training. Other sources of support for Edward have included the local library, where he can check out books on tape; his church, which paid for his computer; the local chapter of the Federation of the Blind; and a rehabilitation hospital that evaluated his assistive technology needs.

In 12th grade, his parents bought him a scanner and an upgraded 486 computer with an Internet connection. Edward is now, with the support of the State Vocational Rehabilitation Agency, attending college and using these tools to pursue a Bachelor's degree.

The Technology-Related Assistance for Individuals with Disabilities ("Tech Act"), passed in 1988, addresses a number of barriers to accessing funds for assistive technology, including the lack of coordination among programs. Several states with strong TAP organizations have demonstrated success in channeling useful information about funding sources to families, schools and districts in need (see Exhibit III-3: TAPs in North Carolina and Wisconsin).

The Tech Act Projects are an excellent resource for locating funds to pay for technology. State policy makers should take steps to ensure that their state TAP has established relationships with state agencies and programs that administer any of the available sources of funding. Active collaboration and coordination among state agencies, coupled with targeted information dissemination and technical assistance, can help educators and families in localities throughout the state to access needed funds.

EXHIBIT III-3

Tech Act Projects (TAPs)

North Carolina's Loan Program

North Carolina's TAP has collaborated with other private and public agencies to innovatively address the issue of increasing access to technology. Working with the Program for Accessible Living and NationsBank, the state TAP created a pilot loan program to help individuals with disabilities purchase assistive technology devices and services. The TAP deposited $200,000 in NationsBank as a reserve guarantee for consumer loans. NationsBank, in turn, agreed to grant consumer loans at the lowest available rate for the purchase of assistive technology devices. Meanwhile, the Program for Accessible Living disseminated information about the program — through letters, brochures and presentations across the state — to individuals who might be eligible for its services.

During its first year, 99 loans were granted to help people buy such items as: Braille equipment, ramps, hearing aids, vans, computers, wheelchairs, stairlifts and home modifications. No consumers defaulted on their loans, and the North Carolina TAP is attempting to expand the program by establishing a larger reserve guarantee amount and/or convincing NationsBank to offer $400,000 in loans with the currently available $200,000 reserve.

Wisconsin's Loan Program

WISTECH is part of the state of Wisconsin's Department of Health and Social Services' Division of Vocational Rehabilitation, and is funded primarily by the Tech Act. Eight "WISTECH" Centers throughout the state perform basic, informal assessments of consumers' technology needs, provide referrals about where this technology might be obtained and support consumers' acquisition of technology through advocacy. WISTECH also has a lending library, so that once consumers' specific technology needs have been identified, they can borrow the necessary items to try them out. WISTECH is exploring creative ways to help schools buy necessary equipment for students with disabilities, such as helping them locate used computer systems through local newspapers advertisements. According to Milwaukee's Director of Special Education, WISTECH has improved the capacity of school districts to provide assistive technology services to students with disabilities.

CONCLUSION

Conclusion

The Future of Special Education Technology

We would not even consider putting nearsighted children into special education programs as long as eyeglasses could correct their problem. Yet schools continue to remove children with disabilities from regular classrooms, even though we have educational technology devices that can help them achieve high levels of learning. Many of these devices are low-tech solutions that do not require computerized parts or even electric power. Others solutions make use of the explosion of new technology enabled by lighter, more compact and more powerful computers.

Because of these technologies, the last decade has witnessed a movement of children with disabilities from special schools and classes to regular classrooms. This trend is likely to continue in the future as more advanced technology is created and researchers discover better ways of using all forms of technology to help educate children with disabilities.

We can expect to see greater use of technology to:

Assess Children — Increasingly, educators are learning that the name of a child's disability does not define what the child can and cannot do. Technology can be used to help teachers measure children's individual strengths and needs, monitor the impact of their teaching strategies, and keep track of individual student growth.

Individualize Instruction — While all children are different, children's disabilities add another element of difference. Technology can be used to help individualize instruction for each student, delivering content geared to the child's ability, needs, and interests.

Make Instruction More Powerful — Technology, from television to computer simulations and the Internet, can help teachers put students in touch with updated concepts, images and experiences that were previously inaccessible.

Improve Communications — Teachers of children with disabilities benefit greatly from communication with parents, teachers and specialists. Voice mail, e-mail, pagers and other technology still being developed can help make this happen.

Increase Access to Instruction — Various forms of technology can help children work around challenges. Children who cannot walk can use a wheelchair; students who cannot see can use machines that read books to them.

Help Children Reach Their Full Potential as Learners, Workers and Citizens — Technology of the future can teach through simulations that unlock students' creativity and enable them to perform advanced analysis and research.

Despite the great potential that technology holds for educating all students, it is important to note that its potential can only be realized when tools are chosen and implemented appropriately. For example, when planning for technology, it is important not to overlook no-tech or low-tech solutions that may be just as, if not more, effective than high-tech solutions for educating students with disabilities. And it is critical that the use of technology be accompanied by solid teacher training and a careful assessment of each student's needs.

The Role of the State Policy Makers

State boards and state education departments may have always had the will to improve the educational

opportunities for students with disabilities, but now they also have the means. Thanks to the reauthorization of the Individuals with Disabilities Education Act and a number of other powerful federal and state legislative initiatives that preceded it, state policy makers have the unparalleled opportunity to positively affect the lives of these students.

With foresight and coordination, state policy makers can play a critical role in ensuring the effective implementation of technology. This guide equips policy makers with the tools to ensure that this happens. With it, they can:

- set policies that include technology for students with disabilities;
- include the use of technology in special education as a factor in evaluations of schools and districts;
- provide more information to schools on the effectiveness of technology for students with disabilities and how to use technology effectively and appropriately;
- inform schools that the state board supports the effective and appropriate use of special education technology;
- provide greater funding for programs that support technology in the education of students with disabilities;
- act as a clearinghouse of information about a variety of public and private funding sources;
- require training for teachers on how technology can effectively be used to educate students with disabilities; and
- include children with disabilities in state plans, reports, policies and local functions.

While educational technology often seems new and strange to adults, the current generation of students integrates it almost unconsciously into their daily lives. Technology has special implications for students with disabilities, providing tools that can open up whole new avenues of educational opportunity. At the same time, technology is fundamentally altering the way all children are educated in America.

With the changes in federal law, members of state boards of education must take a strong leadership role to give all students, including those with disabilities, the chance to benefit fully from technology. By providing thoughtful and careful planning — coupled with strong guidance, enthusiastic support and funding expertise — members of state boards of education can lead the way.

APPENDIX A

NASBE's Resolution on Technology

Appendix A

NASBE's Resolution on Technology

Advanced technologies enhance student learning when used appropriately. NASBE believes that state boards of education must ensure that all students have access to the tools they need to achieve high standards, and that educators master proven instructional tools and strategies. Because the world community is increasingly dependent on technology, it is also imperative that expectations for student achievement include technological skill standards.

A. Technology Standards

All students should:

1. Have the skills necessary to operate computer-based technologies.
2. Be able to use technology to locate, manage and analyze information.
3. Be able to use technology to communicate ideas and information.
4. Understand the impact of technology on individuals and society.

B. Technology and School Personnel

State boards of education should:

1. Provide leadership to ensure that teachers and administrators receive appropriate professional development to enable them to remain abreast of advances in technology.
2. Revise certification and licensure standards to ensure that all teachers are familiar with effective instructional uses of technology. Requirements should be broad enough to allow a wide range of teachers and specialists to teach technological skills.
3. Negotiate with neighboring states on the cross-state approval of distance-learning teachers and approval of instructional courses and materials.

C. Technology and School Systems

State boards of education should provide leadership in the following areas:

1. Ensuring that all students have sufficient access to computers and other advanced technological tools and services, including access to the worldwide electronic information network.
2. Establishing statewide infrastructures for affordable telecommunications that will allow educators and students access to information resources and improve communications.
3. Providing incentives through funding, technical assistance and waivers from regulations for local districts and schools to establish innovative technology learning projects.
4. Developing state technology centers that can:
   - document the use of technology in the state's schools;
   - publicize the achievements and elements of successful model projects;
   - monitor and assess the uses of technology to determine which are the most efficient, effective and capable of replication.
5. Working with the Federal Communications Commission (FCC) and state Public Utilities Commissions in reshaping interstate and intrastate telecommunications policies and advocating for the interests of the state's schools in telecommunications reforms.

APPENDIX B

Major Sources of Federal Support for Accessing Technology

Appendix B

Major Sources of Federal Support for Accessing Technology

U.S. Department of Education

AUTHORITY	DESCRIPTION
Individuals with Disabilities Education Act (IDEA), P.L. 105-17	Special education services are provided to children with disabilities under the IDEA. The purpose of this act is to ensure that children with disabilities receive a "free and appropriate public education." It assists states in providing such an education. Under *Part B, Assistance for Education of All Children with Disabilities*, each eligible child is entitled to an Individualized Education Program (IEP). The law requires that the team responsible for developing a child's IEP "consider whether the child requires assistive technology devices and services." (Sec. 614 (d)(3)(B)(v)) Similarly, under *Part C, Infants and Toddlers with Disabilities*, assistive technology devices and services must be provided as part of each child's Individualized Family Service Plan (IFSP), a plan designed to meet the specific needs of infants and toddlers with disabilities and their families. Funds are also available for professional development efforts to support the aims of the IDEA.
Improving America's Schools Act (IASA), P.L. 103-382	*Title I, Helping Disadvantaged Children Meet High Standards*, aims to help schools provide opportunities for economically disadvantaged children to obtain the skills and knowledge included in state content standards, and to help these children meet state performance standards. Many states use this money to invest in technology and professional development, which can open up important educational opportunities for some of these students.
Eisenhower Professional Development Program	*Title II of IASA, Dwight D. Eisenhower Professional Development Program*, distributes funds to states and school districts for professional development. The purpose of this program is to help ensure that teachers are prepared to teach to the high academic standards states are now developing for all students.
Technology Literacy Challenge Fund	*Title III of IASA, Technology for Education*, authorizes the awarding of grants to state education agencies, which in turn award grants to local education agencies, in order to support school reform efforts through the development,

AUTHORITY	DESCRIPTION
	adaptation, or expansion of existing and new applications of technology. In order to receive funds under Title III, which is now implemented as the Technology Literacy Challenge Fund (TLCF), states must develop and implement a technology plan focused on fully integrating technology into teaching and learning to help ensure that all students, especially economically disadvantaged students, are technologically literate. This program advances four national technology goals: • All teachers will have the training and support they need to help all students learn through computers and through the information superhighway; • all teachers and students will have modern computers in their classrooms; • every classroom will be connected to the information superhighway; and • effective and engaging software and online resources will be part of every school curriculum.
Goals 2000: Educate America Act, P.L. 103-227	Under *Title III, State and Local Education Systemic Improvement*, of the Goals 2000 Act, states receive money to implement a state improvement plan designed to assist local districts and schools meet state content standards. Money allocated under Goals 2000 may be used to support the use of technology in developing and applying instructional materials and methods, professional development and in providing the appropriate accommodations to ensure that all students are assessed according to the same set of academic standards.
Technology-Related Assistance for Individuals with Disabilities Act, P.L. 103-218 "Tech Act"	The mission of the Technology-Related Assistance for Individuals with Disabilities Act is to advance state efforts to implement consumer-responsive, comprehensive, statewide programs to increase the availability, quality, use and effectiveness of assistive technology for all individuals with disabilities, regardless of age or type of disabling condition. *Title I, Grants to States*, authorizes the awarding of grants to develop Technology Assistance Programs, or TAPs, in each of the 56 states and territories. These projects support different capacity-building activities, including systems-change in law, policy and regulations for technology, as well as coordination of delivery of technology assessments, technical assistance and other services.
Rehabilitation Act, P.L. 102-569 "Rehab Act"	*Title I under the Rehab Act, Basic State Grants*, assists states in operating Vocational Rehabilitation (VR) programs to meet the needs of individuals with disabilities as they prepare for and engage in employment. An Individual Written Rehabilitation Plan (IWRP) must be developed for each eligible individual, outlining specific vocational objectives. Assistive technology devices and services are to be provided if included in the IWRP as a needed service.

AUTHORITY	DESCRIPTION
	Services for Independent Living, Title VII of the Rehab Act, focuses on meeting the needs of individuals whose disabilities are so severe that they do not have the potential for employment, but who may benefit from vocational rehabilitation services because such services enable them to live and function independently. Assistive technology is referenced as an allowable service to be provided under individual plans for independent living. Title VII can provide technology for children of pre-school age.
Carl D. Perkins Vocational and Applied Technology Education Act, P.L. 101-392 "Perkins Act"	Under this law, students with disabilities are defined as a "special population" that must receive equal access to the full range of vocational educational programs available to all students. Students with disabilities must be served in accordance with the IDEA and Section 504 of the Rehabilitation Act regarding provision of required assistive technology services. Assistive services may be necessary to help children with disabilities benefit from and participate fully and equally in their education.
Telecommunications Act, P.L. 104-104 "E-Rate"	Many schools are finding that the monthly cost of linking their computers to the Internet is more expensive than the initial cost of wiring the schools. For this reason, following the Telecommunications Act of 1995/6, the Schools and Libraries Universal Fund, or "E-Rate," was created to make telecommunications services affordable for every school and library. Under the E-rate, schools and libraries can apply to receive discounts of 20% to 90% on telecommunications services, internal connections and Internet access. These discounts may enable economically disadvantaged students, for whom the benefits of telecommunications were previously unavailable, to access an important technological learning tool.

U.S. Department of Health and Human Services

AUTHORITY	DESCRIPTION
Human Services Amendments, P.L. 103-252	*Head Start (Title I of the Human Services Amendments)* is a program that serves preschool children from economically disadvantaged backgrounds. At least 10% of the total enrollment opportunities in a Head Start program must be made available to eligible children with disabilities; and these children must receive the full range of child development services required for all children, including education, parent involvement, social services and nutrition and health services (medical, dental and mental health). In addition to the full range of services

AUTHORITY	DESCRIPTION
	provided to all children, special services, including equipment, materials, or modifications of existing facilities, may be available for children who are disabled and are enrolled in the program.
Social Security Act, P.L. 74-271	Medicaid is a national program of medical assistance to individuals who meet eligibility criteria established under *Title XIX of the Social Security Act.* Although Medicaid policies and practices vary by state, some schools and districts use Medicaid money for special education services for children with disabilities from economically disadvantaged families. Medicaid can pay for durable medical equipment or the treatment of problems diagnosed as part of comprehensive physical evaluations and screenings under the Early Periodic Screening, Diagnoses and Treatment (EPSDT) program. Because of this, EPSDT has enabled many children to receive speech and hearing and occupational therapy services, some of which provide or support the use of assistive technology.
Balanced Budget Act, P.L. 105-33	Subtitle J of the Balanced Budget Act of 1997 amended the Social Security Act to add a new title — *Title XXI — the State Children's Health Insurance Program (CHIP).* CHIP expands health coverage to uninsured children whose families earn too much for Medicaid but too little to afford private coverage. As with Medicaid, CHIP policies and practices vary by state, but many schools and districts can use CHIP money to pay for special education services. This money specifically benefits children from economically disadvantaged families and children with disabilities.

RESOURCES

Resources for Information

The following Internet resources provide current, relevant and useful information related to strategies for state and local technology planning efforts that include students with disabilities.

U.S. Department of Education

Technology Home Page

http://www.ed.gov/Technology/

The Department of Education s technology page includes information on federal programs in educational technology, resources on how to plan for and use technology in schools, and links to each state education agency s technology home page.

Office of Special Education Programs Home Page

http://www.ed.gov/offices/OSERS/OSEP

OSEP s home page includes information on current federal policies and activities related to the education of students with disabilities. It provides information on funded projects, including a number specifically related to technology. The page also provides links to technical assistance and information resources.

The Federal Resources For Educational Excellence (FREE) Home Page

http://www.ed.gov/free/

FREE provides learning resources from more than 35 Federal agencies, activities, lessons and resources on innumerable content and curriculum areas such as immigration, the Civil War, calculus, simulations, etc.

National Center for Technology Planning

http://www.nctp.com/

The National Center for Technology Planning (NCTP) is a clearinghouse for the exchange of information related to technology planning. NCTP s web site includes: school district technology plans available for downloading; technology planning aids (checklists, brochures, sample planning forms, PR announcement forms); and electronic monographs on timely, selected topics.

University of Kentucky s Assistive Technology Project

http://serc.gws.uky.edu/www/ukat/ukatmenu.html

This Web site provides descriptive information about assistive technology resources, how to obtain assistive technology technical assistance and findings from research on effective policy on assistive technology service delivery.

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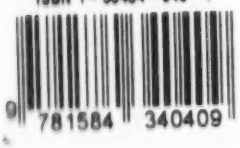

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